AGNPS 5.0 to AnnAGNPS Converter: Version 1 Logic Specification

Logic Specification for AGNPS 5.0 to AnnAGNPS Converter

Introduction

The following AnnAGNPS Input Section Header tables include the data that are populated by the AGNPS 5.0 to AnnAGNPS converter using AGNPS 5.0 data. Some data fields are hard coded text or numbers (shown as **BOLD**), others are variables or equations based on AGNPS5.0 input data (shown as italic) or as ANNAGNPS input or intermediate computation values (plain text).

User Responsibility

It is the users responsibility to ensure that all AnnAGNPS input data (whether it is actually entered, generated by the AGNPS 5.0 to AnnAGNPS converter, or implied through default values for blank data fields) is appropriate for the watershed and watershed conditions being analyzed.

AGNPS 5.0 Converter Input File Name (AGNPS.FIL)

This file is optional and if present will define the path to and name of the AGNPS input file.

Input Parameter Definition

Description	Units	Domain	Format	Line No.	Field No.
AGNPS 5.0 Input File Name - Path and file name to the AGNPS 5.0 Input file. If blank, the default "AGNPS.dat" will be used for the filename.		Computer platform acceptable path and filename	A80	1	1-8
Blank Line				Last	

AGNPS 5.0 to AnnAGNPS Conversion Output Order (AnnAGNPS Input File)

File Identifier

AnnAGNPS Identifier

Watershed & Simulation Data

Watershed Data
Simulation Period Data

Cell Related Data

Cell Data

Field Related Data

Field Data
Field Management Data
Operations Data
Fertilizer Application Data
Pesticide Application Data

Reach Related Data

Reach Data
Reach Geometry Coefficients
Reach Nutrient Half-life
Impoundment Data

Other Component Data

Feedlot Data
Gully Data
Point Source Data

Reference Data

Fertilizer Reference Data
Landuse Reference Data
Pesticide Reference Data
Runoff Curve Number Data
Soil Data

Output Related Data

Source Accounting Output Specification

End of File

End Data

AnnAGNPS Identifier

Required as 1st record

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**AGNPS: Version 1**	1	1-4
Input Units code		**0**	1	5
Output Units code		**0**	1	6

Cell Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name.		**Cell Data:**	1	1-4
Number cells		*Number of Columns*	1	5
The following 3 line sets repeat for the number of cells (specified above). For cells with a Cell-Field identifier of WATER, only the first line of the set (Line No. 2) is used				
Cell identifier		**C**xxxxx or **C**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Cell-Soil identifier		Generate - must match a **Soil identifier** included in Soil Data Leave blank if *Soil Type* is 0 (WATER)	2	2
Cell-Field identifier		Generate - must match a **Field identifier** included in Field Data or Use WATER if *Soil Type* is 0	2	3
Cell-Reach identifier		Generate - must match a **Reach identifier** included in Reach Data	2	4
Reach Location code		Reach Location Code = 0 if no upstream cells; or Reach Location Code = 1 if upstream cells exist	2	5
Cell Area	Acres	Cell Area = *Base Cell Area* if no cell division, Cell Area = *Base Cell Area* / 4 for cell divisions 100, 200, 300, 400, or Cell Area = *Base Cell Area* / 64 for cell divisions x10, x20, x30, x40	2	6
Cell time of concentration	Hr	Cell Time of Concentration = $T_{ov} + T_{sc} + T_{con}$ Where T_{ov} = 0.09*(*Overland Manning's* * Overland Flow Length$^{0.8}$ / 2(*Storm Rainfall*$^{0.5}$)*(*Average Land Slope**.01)$^{0.4}$) Where Overland Flow is the lesser of *Slope Length* or 50 feet. T_{sc} = (Shallow Concentrated Flow Length) / (3600 * 4.9178 * (*Average Land Slope* * .01)$^{0.5}$ Or T_{sc} = (Shallow Concentrated Flow Length) / (3600 * 0.61) Whichever is larger. Where the Shallow Concentrated Flow Length is the *Slope Length* - Overland Flow Length up to 50 feet. T_{con} = ((Concentrated Flow Length) / (3600*(*Concentrated Flow Slope*$^{0.5}$ * 0.935*Cell Area$^{0.28}$)$^{2/3}$) / *Overland Manning's*) Where the Concentrated Flow Length = *Slope Length* - (Overland Flow Length + Shallow Concentrated Flow Length).	2	7
Cell average elevation	Ft	**1000.**	2	8
The following two lines are needed for all cells except those designated with a Cell Field identifier of WATER.				
Blank field			3	1
Cell average land slope	len-vert / len-horz	*Average Land Slope*	3	2
Cell aspect	Decimal^{o}	Blank	3	3

Parameter	Units {English}	Converter Output	Line No.	Field No.
USLE 'ls' factor		USLE LS Factor = LS * Slope Shape Where LS = (*Slope Length* / 72.6) ^{Exponent} * ((65.41 * SIN(ATAN(*Slope Length*))^2) + (4.56 * SIN(ATAN(*Slope Length*))) + 0.065) Where Exponent = 0.2 for *Average Land Slope* < 0.01 Exponent = 0.3 for.0001 ≥ (*Average Land Slope*) ≤.0003 Exponent = 0.4 for.0003 > (*Average Land Slope*) ≤.00045 Exponent = 0.5 for.00045 > (*Average Land Slope*) Where Slope Shape = 1.0 for Uniform (*Slope Shape Code* = 1), Slope Shape = 1.3 for Convex (*Slope Shape Code* = 2), or Slope Shape = 0.88 for Concave (*Slope Shape Code* = 3),	3	4
RUSLE thaw 'ls' factor-		Blank	3	5
Cell Slope identifier		Blank	3	6
Overland flow Manning's "n"		Blank	3	7
Blank field			4	1
Concentrated flow slope	len-vert / len-horz	Blank	4	2
Concentrated flow length	Ft	Blank	4	3
Concentrated flow bottom width	Ft	Blank	4	4
Concentrated flow side slope	len-horz / len-vert	Blank	4	5
Concentrated flow hydraulic depth	Ft	Blank	4	6
Concentrated flow Manning's "n"		Blank	4	7
Blank Line			Last	

End Data

Required as last record

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**End Data:**	1	1-4
Blank Line			Last	

Feedlot Data

(Check to see what data is used from cells for upstream and buffer areas)

Optional

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Feedlot Data:**	1	1-4
Number Feedlots		Generate - Count number of feedlots in input	1	5
Number Feedlot Cells		Generate - Count number of cells referenced by feedlots in input (double counting allowed)	1	6
The following 3 line sets + appropriate number of cell data lines (that contain any portion of the feedlot drainage) repeat for the number of feedlots (specified above). Multiple feedlots for a given cell outlet should be entered as consecutive sets.				
Feedlot identifier.		**FL**xyyy or **FL**xyyy**:**zzz Where x is Feedlot Number yyy is *Cell Number* and zzz is *Cell Division* (if available)	2	1
Feedlot Manage identifier.		Blank	2	2
Open Area.	Acres	Open Area = *Feedlot Area - Roofed Area*	2	3

Parameter	Units {English}	Converter Output	Line No.	Field No.
Paved Ratio		Paved Ratio = 0.0 for *Feedlot Curve Number* < 91. Paved Ratio = (*Feedlot Curve Number* - 91.) / 3 for 91. ≤ *Feedlot Curve Number* ≤ 94. Paved Ratio = 1.0 for *Feedlot Curve Number* > 94.	2	4
Roof Area.	Acres	*Roofed Area*	2	5
Upslope Area.	Acres	Equivalent Cell drainage area to produce the same runoff for the accumulated (up to 6) Area 2 (Upslope) areas. Upslope Area = Σ(Area 2 runoff * *Area 2 Area*) / Cell Runoff	2	6
Blank field			3	1
Feedlot Initial N.	{lb / day / acre}	**0.**	3	2
Feedlot Initial P.	{lb / day / acre}	**0.**	3	3
Feedlot Initial OrgC.	{lb / day / acre}	**0.**	3	4
Delta N.	{Δlb / day / acre}	**0.**	3	5
Delta P.	{Δlb / day / acre}	**0.**	3	6
Delta OrgC.	{Δlb / day / acre}	**0.**	3	7
Blank field			4	1
Feedlot Max N	Ppm	*Feedlot Nitrogen*	4	2
Feedlot Max P	Ppm	*Feedlot Phosphorus*	4	3
Feedlot Max OrgC	Ppm	Feedlot Max Org C = *Feedlot COD* * COD to orgC conversion Where COD to orgC conversion is 0.375	4	4
Feedlot Pack N	{lb/acre}	Equivalent Nitrogen attributed to (up to 3) animal types on feedlot. Feedlot Pack N = Σ(*Number of Type Animals* * *Animal Nitrogen*) * 1000# Steer Nitrogen / *Feedlot Area* Where 1000# Steer Nitrogen = 12	4	5
Feedlot Pack P	{lb / acre}	Equivalent Phosphorus attributed to (up to 3) animal types on feedlot. Feedlot Pack P = Σ(*Number of Type Animals* * *Animal Phosphorus*) * 1000# Steer Phosphorus / *Feedlot Area* Where 1000# Steer Phosphorus = 2	4	6
Feedlot Pack OrgC.	{lb / acre}	Equivalent Organic Carbon attributed to (up to 3) animal types on feedlot. Feedlot Pack OrgC = Σ(*Number of Type Animals* * *COD Factor*) * 1000# Steer COD * COD to OrgC Conversion / *Feedlot Area* Where 1000# Steer COD = 60 and COD to OrgC Conversion is 0.375	4	7
The following line repeats for each cell that drains from the feedlot.				
Two Blank fields			5	1-2
Feedlot Cell identifier		Generate - must match a **Cell identifier** included in Cell Data	5	3
Cell Open Fract.		**1.0**	5	4
Cell Upslope Fract		**1.0**	5	5
Cell Buffer Length	{ft}	Equivalent Cell drainage area to produce the same runoff for the accumulated (up to 3) Buffer Areas. Upslope Area = Σ(*Buffer Slope* * *Buffer Flow Length* / *Slope Length*	5	6
Blank line			Last	

Fertilizer Application Data

Required if referenced in Operations Data

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Fertilizer Application Data:**	1	1
Number Fertilizer Applications		Generate - based on number of cells with fertilizer applied	1	2
The following line repeats for the number of fertilizer application sets (specified above).				
Fertilizer Application identifier		**FA**xxxx or **FA**xxxx**:**yyy Where xxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Fertilizer Name identifier		Generate - must match a **Fertilizer Reference identifier** included in Fertilizer Reference Data	2	2-3
Fertilizer Rate	{lb / acre}	Fertilizer Rate = (*Nitrogen Application Rate * N Availability Factor + Phosphorus Application Rate * P Availability Factor*) / 100	2	4
Fertilizer Depth	{in}	**0.0**	2	5
Fertilizer mixing code		Blank (Indicates yes)	2	6
Blank line			Last	

Fertilizer Reference Data

Required if Fertilizer Application Data used

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Fertilizer Reference Data:**	1	1
Number Fertilizer References		Generate - based on number of cells with fertilizer applied	1	2
The following 2 line sets repeat for the number of fertilizer references s (specified above).				
Fertilizer Reference identifier.		**FR**xxxx or **FR**xxxx**:**yyy Where xxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1-2
Fertilizer N	wt /wt	Fertilizer N = (*Nitrogen Application Rate * N Availability Factor* / 100) / (*Nitrogen Application Rate * N Availability Factor + Phosphorus Application Rate * P Availability Factor*) / 100	2	3
Fertilizer Nitrate	wt /wt	Blank	2	4
Fertilizer Inorganic N	wt /wt	Fertilizer Inorganic N = Fertilizer N * Inorganic N Factor Where Inorganic N Factor is 0.01	2	5
Fertilizer Organic N	wt /wt	Fertilizer Organic N = Fertilizer N * Organic N Factor Where Organic N Factor is 0.99	2	6
Fertilizer Ammonia	wt /wt	Blank	2	7
Fertilizer Mineral Ammonia	wt /wt	Blank	2	8
Blank field			3	1
Fertilizer P	wt /wt	Fertilizer P = (*Phosphorus Application Rate * P Availability Factor* / 100) / (*Nitrogen Application Rate * N Availability Factor + Phosphorus Application Rate * P Availability Factor*) / 100	3	2
Fertilizer Soluble P	wt /wt	Blank	3	3
Fertilizer Inorganic P	wt /wt	Fertilizer Inorganic P = Fertilizer P * Inorganic P Factor Where Inorganic P Factor is 0.50	3	4
Fertilizer Organic P	wt /wt	Fertilizer Organic P = Fertilizer P * Organic P Factor Where Organic P Factor is 0.50	3	5
Fertilizer Organic Matter	wt /wt	Blank	3	6
Fertilizer Consistency code-		**3** (Indicates solid)	3	7
Blank line			Last	

Field Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Field Data:**	1	1-4
Number Fields.		Generate based on Number of (non Water) Cells	1	5
The following 2 line sets repeat for the number of fields (specified above).				
Field identifier		**F**xxxxx or **F**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Field Landuse identifier		**Mixed**	2	2
Field Manage identifier		Generate - must match a **Field Management identifier** included in Field Management Data	2	3
Relative Rotation Year		Blank	2	4
USLE P-factor.		*Practice factor*	2	5
Percent Rock Cover		**0.0**	2	6
RUSLE Sub-P factor		Blank	2	7
Inter-rill Erosion code		Blank	2	8
Blank field			3	1
Random Roughness	{in}	Blank	3	2
Terrace Horizontal Dist	{ft}	Blank	3	3
Terrace Grade	len-vert / len-horz	Blank	3	4
Field Description		Blank	3	5-8
Blank line			Last	

Field Management Data

Required

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Field Management Data:**	1	1-4
Number Field Managements		Generate - from *Number of Columns*	1	5
The following line repeats for the number of operation groups associated with all field management sequences (specified above).				
Field Management identifier		**FM**xxxx or **FM**xxxx**:**yyy Where xxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Operation Group identifier		Generate - must match a **Operation identifier** included in Operations Data	2	2
Blank line			Last	

Gully Data

Optional

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Gully Data:**	1	1-4
Number Gullies.		Generate - count number for all cells	1	5
Gully identifier		**G**xyyyy or **G**xyyyy**:**zzz Where x is Gully Number yyyy is *Cell Number* and zzz is *Cell Division* (if available)	2	1
Gully Cell identifier		Generate - must match a **Cell identifier** included in Cell Data	2	2
Gully Soil identifier		Generate - must match a **Soil identifier** included in Soil Data	2	3
Gully Drainage Area	{acres}	Gully Drainage Area = Cell Area / # Additional Erosion Sources in Cell	2	4
Head Cut Depth	{in}	**0.0**	2	5
Gully Erosion Coefficient	{tons}	*Amount of Erosion*	2	6
Gully Erosion Exponent		**0.0**	2	7
Gully Description		Gully Description = Gully for *Type of Additional Erosion* = 1 (Gully); Gully Description = Construction for *Type of Additional Erosion* = 2 (Construction); Gully Description = River bed and Bank for *Type of Additional Erosion* = 1 (River Bank); or Gully Description = *Other Erosion Name* for *Type of Additional Erosion* = 4 (Other)	2	8
Blank line			Last	

Impoundment Data

(Note If only part of cell flows into impoundment, cell will have to be split into two pieces and a new impoundment reach created for portion flowing through impoundment)

Required if referenced in Reach

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Impoundment Data:**	1	1
Number Impoundments		Generate- Sum number associated with all cells	1	2
The following line repeats for the number of impoundments (specified above).				
Impoundment identifier		**I**xyyyy or **I**xyyyy**:**zzz Where x is Impoundment Number yyyy is *Cell Number* and zzz is *Cell Division* (if available)	2	1
Impoundment Infiltration.	{in / hr}	*Infiltration Rate*	2	2
Impoundment Seepage	{cfs}	**0.0**	2	3
Permanent Pool Depth	{feet}	**0.0**	2	4
Impoundment Volume Coefficient		Impoundment Volume Coefficient = *Drainage Area* / (1.2 * (*Average Land Slope**100) + 5)	2	5
Impound Volume Exponent		**2**	2	6
Impound Discharge Coefficient		Pressure Pipe flow assumed Impoundment Discharge Coefficient = 3.88 * (*Pipe Diameter* / 12)^2	2	7
Impound Discharge Exponent		**0.5**	2	8
Blank line			Last	

Landuse Reference Data

Required if referenced on Field Data

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Landuse Reference Data:**	1	1
Number Landuses		*Number of Columns*	1	2
The following 2 line set repeats for the number of landuses (specified above).				
Landuse identifier		**Mixed** **L**xxxxx or **Mixed** **L**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1-2
Landuse Description		Blank	2	3-8
Blank field			3	1
Annual Root Mass	{lb / acre}	Blank	3	2
Annual Cover Ratio		Blank	3	3
Annual Rain Fall Height	{in}	Blank	3	4
Surface Residue Cover	%	Blank	3	5
USLE C-Factor		*Cropping Factor*	3	6
Blank line			Last	

Operations Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Operations Data:**	1	1-4
Number Operations		Generate based on Number of (non Water) Cells	1	5
Number Pesticide Applications		Generate - sum of all pesticide applications for all cells	1	6
The following 4 line sets repeat for the number of operations (specified above) within an operation grouping. All operation within a grouping must be sequential in time. The last line in the set is repeated for the number of pesticides applied in the operation. If no pesticide application then the last line is omitted.				
Operation identifier		**O**xxxxx or **O**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Operation Date	mmmdddyyyy	Blank	2	2a-2c
Operation Contour identifier		Blank	2	3
Operation New Crop identifier		Blank	2	4-5
Operation Strip identifier		Blank	2	6
Operation Non-crop identifier		Generate - must match a **Landuse identifier** included in Landuse Reference Data	2	7-8
Blank field			3	1
Operation Curve Number identifier		Generate - must match a **Curve Number identifier** included in Runoff Curve Number Data	3	2-5
Post Operation Manning's n		*Overland Manning's*	3	6
Post operation Surface Constant		*Surface Condition Constant*	3	7
Operation Residue Change	{lb/acre}	Blank	3	8
Blank field			4	1
Operation Fertilizer Application identifier		Blank or Generate - must match a **Fertilizer Application identifier** included in Fertilizer Application Data	4	2
Operation Irrigation Application identifier		Blank	4	3
Operation Reference Data identifier		Blank	4	4-5
The following line repeats for the number of pesticides applied with the operation (specified above). If no pesticides are applied in the operation, no pesticide id records should be included.				
2 Blank fields			5	1-2
Operation Pesticide Application identifier		Generate - must match a **Pesticide Application identifier** included in Pesticide Application Data	5	3
Blank line			Last	

Pesticide Application Data

Required if referenced on Operations Data

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Pesticide Application Data:**	1	1
Number Pesticide Applications		Generate - sum of all pesticide applications for all cells	1	2
The following 2 line sets repeat for the number of pesticide application sets (specified above).				
Pesticide Application identifier		**PA**xxxx or **Pa**xxxx**:**yyy Where xxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Pesticide identifier		*Pesticide Common Name*	2	2-5
Blank field			3	1
Pesticide Rate.	{lb / acre}	*Application Rate*	3	2
Pesticide Depth	{in}	*Incorporation Depth*	3	3
Pesticide Mixing code-		Blank	3	4
Pesticide Foliage Fraction		Pesticide Foliage Fraction = *Application Rate* * (*Application Efficiency* / 100.) * (*Canopy Cover* / 100.) + *Initial Foliar Residue* * EXP(-0.693 * *Time Since Application* / *Foliar Residue Half-life*) / *Application Rate*	3	5
Pesticide Soil Fraction		Pesticide Soil Fraction = *Application Rate* * (*Application Efficiency* / 100.) * (*Canopy Cover* / 100.) + *Initial Soil Residue* * EXP(-0.693 * *Time Since Application* / *Soil Residue Half-life*) / *Application Rate*	3	6
Blank line			Last	

Pesticide Reference Data

Required if Pesticide Application Data used or pesticide data with Simulation Period Data

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Pesticide Reference Data:**	1	1
Number Pesticide References		Generate - from number of unique Common Pesticide Names in AGNPS input	1	2
The following 2 line sets repeat for the number of pesticide references (specified above).				
Pesticide Reference identifier		*Pesticide Common Name*	2	1-4
Pesticide Solubility	wt / wt	*Solubility in Water*	2	5
Pesticide Partition		*Organic Carbon Sorption*	2	6
Pesticide Soil Half-life	Days	*Soil Residue Half-life*	2	7
Pesticide Foliage Half-life	Days	*Foliar residue Half-life*	2	8
Blank field			3	1
Pesticide Washoff		Pesticide Washoff = *Foliar Washoff Fraction* / 100	3	2
Metabolite identifier		Blank	3	3-6
Metabolite Transformation		Blank	3	7
Pesticide Reach Half-life.	Days	Blank	3	8
Blank line			Last	

Point Source Data

Optional

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Discharge Point Source Data:**	1	1
Number Point Sources.		Generate - sum non-feedlot point sources for all cells	1	2
The following line repeats for the number of point sources (specified above). Multiple point sources for a cell should be consecutive lines here.				
Point Source identifier.		**PS**xyyy or **PS**xyyy**:**zzz Where x is Point Source Number yyy is *Cell Number* and zzz is *Cell Division* (if available)	2	1
Point Cell identifier		Generate - must match a **Cell identifier** included in Cell Data	2	2
Point Flow.	{cfs}	*Water Discharge*	2	3
Point Nitrogen	ppm	*Total Nitrogen*	2	4
Point Phosphorus	ppm	*Total Phosphorus*	2	5
Point Organic Carbon	ppm	Point Organic Carbon = *Total COD* * COD to OrgC Conversion Where COD to OrgC Conversion is 0.375	2	6
Blank line			Last	

Reach Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Reach Data:**	1	1-4
Number Reaches.		Generate - from Number of Columns, and any created impoundment reaches due to multiple impoundments in a cell	1	5
The following 3 line set repeats for the number of reaches (specified above).				
Reach identifier.		**R**xxxxx or **R**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Receiving Reach identifier		Generate - from AGNPS input Downstream Cell ID (must match a **Reach identifier** included in Reach Data)	2	2
Reach Vegetation code		Reach Vegetation code = 0 if *Type of Channel* ≥ 6 or 0; and Reach Vegetation code = 1 if 1 ≥ *Type of Channel* ≤ 5	2	3
Reach Elevation	{ft}	**1000.**	2	4
Reach Slope	len-vert / len-horzt	Reach Slope = *Channel Slope* * 0.01	2	5
Reach Manning's n		*Channel Manning's Coefficient*	2	6
Reach Infiltration Rate	{in / hr}	**0.0**	2	7
Blank field			3	1
Reach Channel Geometry identifier		Generate - must match a **Reach Geometry identifier** included in Reach Geometry Coefficients	3	2
Reach Length	{ft}]	Method depends on the input values for *Hydrologic Calculation Indicator* and *Geomorphic Indicator* If *Hydrologic Calculation Indicator* is 1 (CREAMS) or, If *Geomorphic Indicator* is 1 (Geomorphic) then, Reach Length = Blank If *Hydrologic Calculation Indicator* is 0 (TR-55) and, If *Geomorphic Indicator* is 0 (Non-geomorphic) then, Reach length = *Channel Length*	3	3
Reach Top Width	{ft}	Method depends on the input values for *Hydrologic Calculation Indicator* and *Geomorphic Indicator* If *Hydrologic Calculation Indicator* is 1 (CREAMS) then, Reach Top Width = SQRT(Cell Area * 43560) / 2 If *Hydrologic Calculation Indicator* is 0 (TR-55) then, If *Geomorphic Indicator* is 0 (Non-geomorphic) then, Reach Top Width = *Channel Width* If *Geomorphic Indicator* is 1 (Geomorphic) then, Reach Top Width = Blank	3	4
Reach Flow Depth	{ft}	Method depends on the input values for *Hydrologic Calculation Indicator* and *Geomorphic Indicator* If *Hydrologic Calculation Indicator* is 1 (CREAMS) then, Reach Flow Depth = 0.5 If *Hydrologic Calculation Indicator* is 0 (TR-55) then, If *Geomorphic Indicator* is 0 (Non-geomorphic) then, Reach Flow Depth = *Channel Depth* If *Geomorphic Indicator* is 1 (Geomorphic) then, Reach Flow Depth = Blank	3	5
Valley Width	{ft}	Blank	3	6
Valley Manning's n		Blank	3	7
Blank field			4	1
Start Diversion	{cfs}	Blank	4	2
Stop Diversion.	{cfs}	Blank	4	3
Blank field			4	4
Clay Scour code		*Clay Scouring Indicator*	4	5a
Silt Scour code		*Silt Scouring Indicator*	4	5b
Sand Scour code		*Sand Scouring Indicator*	4	5c
Small Aggregate Scour code		*Small Aggregate Scouring Indicator*	4	5d

Parameter	Units {English}	Converter Output	Line No.	Field No.
Large Aggregate Scour code		*Large Aggregate Scouring Indicator*	4	5e
Valley Clay Scour code		*Clay Scouring Indicator*	4	6a
Valley Silt Scour code		*Silt Scouring Indicator*	4	6b
Valley Sand Scour code		*Sand Scouring Indicator*	4	6c
Valley Small Aggregate Scour code		*Small Aggregate Scouring Indicator*	4	6d
Valley Large Aggregate Scour code		*Large Aggregate Scouring Indicator*	4	6e
Reach Impoundment identifier		Blank or Generate - must match a **Impoundment identifier** included in Impoundment Data	4	7
blank line			Last	

Reach Geometry Coefficients

Required if referenced on Reach Data

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Reach Geometry Coefficients:**	1	1-4
Number Reach Geometry Sets		Generate - unique number of sets contained in AGNPS	1	5
The following 2 line set repeats for the number of reach geometry coefficient sets (specified above).				
Reach Geometry identifier		**RG**xxxx or **RG**xxxx**:**yyy Where xxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Geometry Length Coefficient	{ft}	*Channel Length Coefficient*	2	2
Geometry Length Exponent		*Channel Length Exponent*	2	3
Geometry Width Coefficient	{ft}	*Channel Width Coefficient*	2	4
Geometry Width Exponent		*Channel Width Exponent*	2	5
Geometry Depth Coefficient	{ft}]	*Channel Depth Coefficient*	2	6
Geometry Depth Exponent		*Channel Depth Exponent*	2	7
Blank field			3	1
Valley Width Coefficient	{ft}]	*Channel Width Coefficient*	3	2
Valley Width Exponent		*Channel Width Exponent*	3	3
Blank line			Last	

Reach Nutrient Half-life

Optional

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Reach Nutrient Half-life:**	1	1-4
Blank field			2	1
Reach Nitrogen Half-life	days	Reach Nitrogen Half-Life = Log10(0.5) / Log10(1-Median(*Percent Nitrogen Decay*/100))	2	2
Reach Phosphorus Half-life	days	Reach Phosphorus Half-Life = Log10(0.5) / Log10(1-Median(*Percent Phosphorus Decay*/100))	2	3
Reach Organic Carbon Half-life	days	Reach Nitrogen Half-life	2	4
blank line			Last	

Runoff Curve Number Data

(Note: Assign same Curve Number for each Hydrologic Soil Group)

Required

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Runoff Curve Number Data:**	1	1
Number Curve Numbers		Generate - from Number of unique Curve Numbers for all cells	1	2
The following line repeat for the number of runoff curve numbers (specified above).				
Curve Number identifier.		**CN** xxx Where xxx is Runoff Curve Number on this line	2	1-4
Residue Adjustment code		Blank	2	5
Curve Number "A"		*Curve Number*	2	6a
Curve Number "B"		*Curve Number*	2	6b
Curve Number "C"		*Curve Number*	2	7a
Curve Number "D"		*Curve Number*	2	7b
Blank line			Last	

Simulation Period Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Simulation Period Data:**	1	1-4
Number Initial Pesticides		Blank	1	5
Simulation Begin Date	Mmmdddyyyy	Assign (current date)	2	1a-1c
Simulation End Date.	mmmdddyyyy	Blank	2	2a-2c
Rainfall Distribution code		*Storm Type*	2	3
Rainfall factor	{ft-ton-in / 100 (acre-hr year)}	*Storm Energy Intensity*	2	4
10-yr EI	{ft-ton-in / 100 (acre-hr)}	Blank	2	5
EI Number		Blank	2	6
Irrigation Climate code		Blank	2	7
Soil Moisture Steps		Blank	2	8
Erosion Model code		**1**	3	1
Annual K-factor code		Blank	3	2
Variable K-factor code		Blank	3	3
Number Initialization Years		Blank	3	4
Phosphorus Partition Coefficient		Blank	3	5
Precipitation Nitrogen	mass-N / mass-precip	*Rainfall Nitrogen*	3	6
Daily Precipitation	{in}	*Storm Rainfall*	3	7
Default Reach Geometry		Blank	3	8
The following 3 line set is entered only if other than the CROPLAND global initialization defaults are desired. Most parameters can also be set using an initialization record in Operations Data				
		OMIT RECORDS (4 to 6)	4-6	All
The following 3 line set is entered only if other than the global NON-CROPLAND initialization defaults are desired.				
		OMIT RECORDS (7 to 9)	7-9	All
The following record is repeated for the number of pesticides indicated on header record above. Enter only for pesticides that require other than the global initialization defaults.				
		OMIT RECORD (10)	10	All
Blank line			Last	

Soil Data

Required

Parameter	Units {English}	Converter Output	Line No.	Field No.
Data Section Name		**Soil Data:**	1	1-4
Number Soils		Generate - from Number of non-Water cells + Number of Gullies	1	5
Number Soil Layers		Number Soils	1	6
The following 2 lines repeat for the number of soils (specified above).This two line set is followed with a 3 line set for each soil layer in the soil profile.				
Soil identifier		**S**xxxxx or **S**xxxxx**:**yyy Where xxxxx is *Cell Number* and yyy is *Cell Division* (if available)	2	1
Hydrologic Soil Group		Hydrologic Soil Group = A if *Soil Type* is 1 (sand) Hydrologic Soil Group = B if *Soil Type* is 2 (silt) Hydrologic Soil Group = C if *Soil Type* is 3 (clay) Hydrologic Soil Group = D if *Soil Type* is 4 (peat)	2	2
K-factor		*Soil Erodibility Factor*	2	3
Albedo.	Radiation reflected / radiation incoming	Blank	2	4
Re-consolidation Half-life	days	**365.**	2	5
Impervious Depth	{in}	Blank	2	6
Specific Gravity	mass-soil / mass-H_2O	Blank (This will cause the default in AnnAGNPS to be used)	2	7
Soil Name		Generate - based on soil texture and unique characteristics	3	1-4
Soil Texture		Soil Texture = SAND if *Soil Type* is 1 (sand) Soil Texture = SILT if *Soil Type* is 2 (silt) Soil Texture = CLAY if *Soil Type* is 3 (clay) Soil Texture = PEAT if *Soil Type* is 4 (peat)	3	5-8
The following 3 line set repeats for each soil layer in the soil profile. These records follow directly after the 2 line general data for each soil.				
Blank Field			4	1
Layer Depth	{in}	**10.**	4	2
Bulk Density	{lb / ft^3}	Bulk Density = 100. if *Soil Type* is 1 (sand) Bulk Density = 80. if *Soil Type* is 2 (silt) Bulk Density = 85. if *Soil Type* is 3 (clay) Bulk Density = 12. if *Soil Type* is 4 (peat)	4	3
Clay Ratio	mass-clay/ mass-mineral soil	Clay Ratio = .03. if *Soil Type* is 1 (sand) Clay Ratio = .26 if *Soil Type* is 2 (silt) Clay Ratio = .56 if *Soil Type* is 3 (clay) Clay Ratio = 1.00 if *Soil Type* is 4 (peat)	4	4
Silt Ratio	mass-silt/ mass-mineral soil	Silt Ratio = .03. if *Soil Type* is 1 (sand) Silt Ratio = .42 if *Soil Type* is 2 (silt) Silt Ratio = .33 if *Soil Type* is 3 (clay) Silt Ratio = 0.00 if *Soil Type* is 4 (peat)	4	5
Sand Ratio	mass-sand / mass-mineral soil	Sand Ratio = .94. if *Soil Type* is 1 (sand) Sand Ratio = .32 if *Soil Type* is 2 (silt) Sand Ratio = .11 if *Soil Type* is 3 (clay) Sand Ratio = 0.00 if *Soil Type* is 4 (peat)	4	6
Rock Ratio	mass - rock / mass - mineral soil	Blank	4	7
Fine Sand Ratio	mass-fine sand / mass-mineral soil	Blank	4	8
Blank Field			5	1
CaCO3	wt CaCO3 / wt < 2mm soil	Blank	5	2

Parameter	Units {English}	Converter Output	Line No.	Field No.
Saturated Conductivity-	{in / hr}	Saturated Conductivity = 5.46. if *Soil Type* is 1 (sand) Saturated Conductivity = 3.05 if *Soil Type* is 2 (silt) Saturated Conductivity = 0.55 if *Soil Type* is 3 (clay) Saturated Conductivity = 0.10 if *Soil Type* is 4 (peat)	5	3
Field Capacity	ht-H_2O / ht-soil layer	Field Capacity = 0.12. if *Soil Type* is 1 (sand) Field Capacity = 0.29 if *Soil Type* is 2 (silt) Field Capacity = 0.35 if *Soil Type* is 3 (clay) Field Capacity = 0.60 if *Soil Type* is 4 (peat)	5	4
Wilting Point	ht-H_2O / ht-soil layer	Wilting Point = 0.02. if *Soil Type* is 1 (sand) Wilting Point = 0.14 if *Soil Type* is 2 (silt) Wilting Point = 0.30 if *Soil Type* is 3 (clay) Wilting Point = 0.30 if *Soil Type* is 4 (peat)	5	5
Volcanic code		Blank	5	6
Base Saturation	%	Base Saturation = 0.5. if *Soil Type* is 1 (sand) Base Saturation = 0.5 if *Soil Type* is 2 (silt) Base Saturation = 0.5 if *Soil Type* is 3 (clay) Base Saturation = 0.3 if *Soil Type* is 4 (peat)	5	7
Unstable Aggregate Ratio	mass-unstable agg / mass-soil	Blank	5	8
Blank Field			6	1
pH		pH = 6.0. if *Soil Type* is 1 (sand) pH = 6.0 if *Soil Type* is 2 (silt) pH = 6.0 if *Soil Type* is 3 (clay) pH = 5.0 if *Soil Type* is 4 (peat)	6	2
Organic Matter Ratio	mass-org matter / mass-soil	Organic Matter Ratio = 0.0194. if *Soil Type* is 1 (sand) Organic Matter Ratio = 0.1681 if *Soil Type* is 2 (silt) Organic Matter Ratio = 0.3621 if *Soil Type* is 3 (clay) Organic Matter Ratio = 0.6466 if *Soil Type* is 4 (peat)	6	3
Organic N Ratio	ppm	0.99 * *Base Soil Nitrogen*	6	4
Inorganic N Ratio	ppm	0.01 * *Base Soil Nitrogen*	6	5
Organic P Ratio	ppm	0.50 * *Base Soil Phosphorus*	6	6
Inorganic P Ratio	ppm	0.50 * *Base Soil Phosphorus*	6	7
Soil Structure code		Soil Structure Code = 2 if *Soil Type* is 1 (sand) Soil Structure Code = 1 if *Soil Type* is ≥ 2 (silt, clay, or peat)	6	8
Blank line			Last	

Source Accounting Output Specification

Required

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Source Accounting Output Data:**	1	1-4
Number Source Account		Generate -from Number of Cells and Number of Divisions that are not "Water"	1	5
The following 2 line set repeats for the number of source accounting components (specified above) that the user selects for output.				
Source Accounting identifier		Generate - based on AGNPS *Cell Number* and *Cell Division* (must match a **Cell identifier** included in Cell Data)	2	1
Component Type code		**1**	2	2
Source Water Code		Blank	2	3a
Source Sediment Class Code		Blank	2	3b
Source Sediment Class/Source Code		Blank	2	4a
Source Sediment Source Code		Blank	2	4b
Source Nutrient Code		Blank	2	5a
Source Pesticide Code		Blank	2	5b
Blank field			3	1
Source Description		Blank	3	2-7
blank line			Last	

Watershed Data

Required

Parameter	Units	Converter Output	Line No.	Field No.
Data Section Name		**Watershed Data:**	1	1-4
Watershed Name		*Watershed Name*	2	1-8
Watershed Description		*Description*	3	1-8
Watershed Location		Blank	4	1-6
Latitude	Decimal ^{o}	Blank	4	7
Longitude	Decimal ^{o}	Blank	4	8
Blank line			Last	

Section Headers Not Used In Converting from AGNPS Input

Cell Profile Data

Contour Data

Crop Data

Feedlot Management Data

Global Output Specification

Irrigation Application Data

Operations Reference Data

Reach Output Specification

Strip Crop Data

Verification Data